which has been noticed by preceding observers, but of which the cause had not hitherto been ascertained. A dark stria may occasionally appear as a luminous one, and *vice versâ*, when viewed by light transmitted at different degrees of obliquity.

The structure here described, the author remarks, reduces the muscular fibre to the simple type of organization exhibited in the combination of a series of cells, associating it with other tissues of cell formation, and will probably, he thinks, open new sources of explanation of the immediate agency of muscular action, a power hitherto involved in the deepest mystery.

2. "On the Comparative Anatomy of the Thyroid Gland." By John Simon, Esq., Assistant Surgeon to King's College Hospital, and Demonstrator of Anatomy in King's College. Communicated by Joseph Henry Green, Esq., F.R.S.

The author, considering that the careful dissections of Meckel and Cuvier have fully established the universal existence of a thyroid gland in the whole of the class Mammalia, proceeds to consider the comparative anatomy of this organ in the remaining classes of vertebrated animals. His dissections of birds have included all the orders, and, in most instances, several families from each: he has never failed to find in them a thyroid gland, and, with the aid of the microscope, to recognise its peculiar structure; he presumes, therefore, that it is universally present in that class of animals. He has also detected the presence of this organ in reptiles of every order; although generally either wholly overlooked by anatomists, or mistaken for the thymus. Descriptions are here given of its appearance, position and structure in different families of Chelonia, Sauria, Ophidia and Batrachia. In the class of Fishes, it is by no means universally or even generally present. The author has found it in the carp, anableps, pike, exocetus, cod, haddock, whiting, eel, sturgeon, callorhynchus, shark and skate, and perhaps in the lamprey. On the other hand, it appears to be absent in the perch, mullet, gurnard, mackerel, tench, salmon, trout, herring, plaice, halibut, turbot, sole, cyclopterus, gymnotus and balistes.

The general conclusion which the author deduces from his researches is, that the distribution of the thyroid gland is regulated by a simple and uniform law; being dependent on the existence or non-existence of another organ with which its presence alternates, and which, in many fishes, assumes the form of a minute supplementary gill, the vessels of which communicate, on the one hand, with the systemic veins about the base of the cranium, and on the other, by a single long trunk with the first branchial vein.

Although the thyroid gland occupies various situations in different animals, it always maintains an intimate relation with the vascular supply of the brain, and is always so nourished as to be capable of a greater or less nutrition according to the activity or repose of that nervous centre.

3. "On the Resolution of Numerical Equations." By Joseph Agar,

M.D., Fellow of the Royal College of Physicians. Communicated by John Ayrton Paris, M.D., President of the College.

The object of this paper, which is purely analytical, is to explain a method of resolving numerical equations with real coefficients, which recommends itself by its simplicity and generality.

4. "On the Reproduction of lost parts in Myriapoda and Insecta." By George Newport, Esq., F.R.C.S., President of the Entomological Society of London, and Corresponding Member of the Philomathic Society of Paris. Communicated by P. M. Roget, M.D., Sec. R.S.

It has long been known that the limbs of Crustacea and Arachnida, accidentally lost or designedly removed, are, in course of time, replaced by the growth of new limbs; and the same power of reproduction has been stated to have been observed in the Phasmæ, insects which undergo neither metamorphosis nor any change of habits. But whether such a power exists in those insects, such as the Lepidoptera, which undergo a complete metamorphosis, changing not only their form, but also their food and mode of life, in passing from the larva to the adult state, has been considered as very doubtful. The instances in which the reproduction of lost parts appeared to have occurred in some of the Myriapoda, were attributed to imperfect or arrested development. With a view to determine these unsettled points, the author commenced, in the summer of 1841 and 1842, a series of direct experiments on this subject in the Myriapoda; and in the present summer he has extended them to the Lepidoptera. The results of his labours are given in the present memoir.

In some specimens of Iulus, from which he had removed the antennæ and some of the legs, the lost organs were found to be completely reproduced after the next change of integument; differing from the original organs only in their smaller size, and the incomplete development of some of their minuter parts. The same results followed from similar experiments made on the Lithobris during the earlier periods of its growth. One individual of this genus, which had already acquired the tenth pair of legs, was by accident deprived of the eighth, ninth and tenth pair; at the next change of skin it not only developed two additional pair of legs, but also reproduced the three pair which had been lost. Some time after this it again lost one of the legs of the twelfth pair; a loss which was repaired at the next change by the growth of a new leg, while those previously reproduced acquired an increase of size.

The first observation which led the author to believe that true insects might possess the power of reproducing lost parts, was that of a specimen of Phasma in the collection at the British Museum, in which the right anterior leg had evidently been reproduced. He then instituted a series of experiments on the larva of the *Vanessa urticæ*, or common nettle butterfly, which belongs to the order Lepidoptera, and undergoes complete metamorphosis. He removed some of the true legs of the larva, sometimes in their tibial portion,